



Otorhinolaryngology

NASOPHARYNGEAL CARCINOMA: A CHANGING TREND IN EPIDEMIOLOGY, INCIDENCE RATE AND TREATMENT PROSPECTS IN TERTIARY CARE HOSPITAL

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ABSTRACT **Introduction:** Nasopharyngeal carcinoma is a rare disease all over the world. It has often been less evaluated, misdiagnosed, partially treated and above all has poor prognosis with high rate of recurrence. This study is a retrospective study which shows an increase in the incidence of Nasopharyngeal carcinoma in the upper- Assam region of India. There has been an upsurge in the number of cases reporting to Department of Otolaryngology and Head and Neck Surgery in Tertiary Care Centre, Assam, India. **Methods:** This is a retrospective study of eight cases reporting in a tertiary care centre in a span of 6 months (Jan 19' - Jun 19'). Detailed history and clinical examination of each case was done. Diagnosis confirmed with nasal endoscopic biopsy. Staging of all the cases were done with CT scan and MRI. **Results:** A total of eight cases were included in study which reported in our department in 6 months period. 6 were male (75%) and 2 females (25%). AJCC staging of study group was Stage I- 1 patient, Stage II- 2 patient, Stage III- 2 patient and Stage IV- 3 patient. **Conclusion:** Increasing rate of Nasopharyngeal carcinoma in upper Assam region is alarming and cases should be properly evaluated and investigated as the available treatment is rewarding.

KEYWORDS : Epidemiology, Nasopharyngeal carcinoma, Upper assam

INTRODUCTION

Nasopharyngeal carcinoma is a malignant tumour with unique features that make it pathologically, epidemiologically, and clinically distinct from other head and neck cancers.

It is defined as a tumor arising from the epithelial cells that cover the surface and line the nasopharynx. NPC was first described as a separate entity by Regaud and Schmincke in 1921¹.

The incidence of NPC is generally less than 1 per 100,000 individuals². It is extremely common in southern regions of China, particularly in Guangdong, accounting for 18% of all cancers in China. It is sometimes referred to as Cantonese cancer (廣東癌) because it occurs in about 25 cases per 100,000 people in this region, 25 times higher than the rest of the world³. It is also quite common in Taiwan.³ This could be due to the Southeast Asian diet or that Southern Chinese people such as the Cantonese and Taiwanese have Southeast Asian ancestry (such as the proto-Kra-Dai speaking peoples and proto-Austronesian peoples) via ancient intermarriages with Han Chinese from Northeast Asia which led to the transmission of a genetic risk for nasopharynx cancer⁴.

India, though being an integral part of Southeast Asia, has significant geographic, racial, and cultural diversity in the population which is reflected in varied incidence of cancer in various parts of the country as well. Highest age-adjusted rates for NPC were found in Northeast States with Kohima district in Nagaland having an incidence of 19.4/100,000 population⁵.

NPC differs significantly from other head and neck cancer in its epidemiology, etiology, clinical symptoms, treatment and prognosis.

Nasopharynx being not easily accessible, diagnosis is often delayed and the disease is in advanced stage at the time of presentation. Radiation therapy has been the mainstay of primary treatment and chemoradiation is the preferred approach for advanced stages.

Rudresha et al in their study mentioned that In case of nasopharyngeal carcinoma, for both male and female incidence is higher in north east registries except KUD, Dibrugarh, Tripura, Cachar⁶.

In this study we would like to stress on changing trend of nasopharyngeal carcinoma in upper Assam region (Dibrugarh) which mostly constitutes of people of non-mongoloid origin.

This is a retrospective study of eight cases reporting in a tertiary care

centre in a short span of 6 months (January 2019- June 2019). The main objective of this study was to see the incidence, disease pattern and its management.

Material and methods:

This is a retrospective study of eight cases reporting in a tertiary care centre in a span of 6 months (Jan 19' - Jun 19').

Before commencing the study, necessary permission and approval from ethics committee was obtained from the Institutional Ethics Committee (Human), Assam Medical College and Hospital.

Informed written consents were obtained from each patient involved in the study according to the protocol approved by the Ethics Committee and after explaining the procedure to them in their own understandable language.

Detailed history and clinical examination of each case was done. Diagnosis confirmed with nasal endoscopic biopsy. Staging of all the cases were done with CT scan and MRI. Routine blood examinations and other systemic laboratory examinations for the chemotherapy and radiotherapy were also performed.

All the cases were treated primarily radiation followed by chemotherapy.

Radiation in a dose of 66Gy -72Gy on weekdays for six weeks was given.

Cisplatin based chemotherapy in a dose of 100mg/m² IV in 1 hour and Docetaxel in a dose of 100mg/m² IV in 1 hour on day 1 followed by Cisplatin chemotherapy in a dose of 100mg/m² IV in 1 hour on day 2 was given.

Evaluation of the treatment outcome was done at the end of the radiotherapy and then after 6 weeks for concurrent chemo radiation.

Complete tumor disappearance by shrinkage as investigated by CT scan was defined as complete response and tumour shrinkage by 50% or more but less than complete was taken as partial response.

Patients were followed up clinically at 6 weeks after completion of treatment, then at 3 months thereafter.

Results

Eight patients with locally advanced Nasopharyngeal Carcinoma were

included in this study.

6 were male (75%) and 2 females (25%), Mean age was 56.6 years (21-70 years). Youngest being 21 years and oldest 70 yrs. (Table 1)

Table 1: Demographic data of cases

Age	sex	Region	Religion
21 yrs	Male	Dibrugarh	Hindu
32 yrs	Male	Dibrugarh	Hindu
63 yrs	Female	Dibrugarh	Hindu
66yrs	Male	Lakhimpur	Muslim
66 yrs	Male	Lakhimpur	Hindu
67 yrs	Female	Lakhimpur	Hindu
68 yrs	Male	Golaghat	Hindu
70 yrs	Male	Dhemaji	Hindu

Out of 8 cases 3 were from Dibrugarh, 3 cases from Lakhimpur , 1 from Dhemaji and 1 from Golaghat as mentioned in Table 1.

87.5% patients presented with epistaxis and nasal obstruction and 50% patients presented with neck node and speech defect, 37.5% with headache, cranial nerve involvement and snoring , 25% with deafness as mentioned in Table 2

Table 2: Clinical presentation of cases.

SYMPTOMS	% OF PATIENTS	SIGN	% OF PATIENTS
NASAL OBSTRUCTION	87.5	NASOPHARYNGEAL MASS	100
EPISTAXIS	87.5	NASAL CAVITY EXTENSION	87.5
SPEECH DEFECTS	50	NECK MASS	50
HEADACHE	37.5	CONDUCTIVE DEAFNESS	37.5
SNORING	37.5	CRANIAL NERVE INVOLVEMENT	25
DEAFNESS	25		

AJCC staging of patients is as follows –

- Stage I- 1 patient
- Stage II-2patient
- Stage III-2patient
- Stage IV-3patient

All the cases were treated primarily radiation followed by chemotherapy .

Radiation in a dose of 66Gy -72Gy on weekdays for six weeks was given.

Cisplatin based chemotherapy in a dose of 100mg/m² IV in 1 hour and Docetaxel in a dose of 100mg/m² IV in 1 hour on day 1 followed by Cisplatin chemotherapy in a dose of 100mg/m² IV in 1 hour on day 2 was given.

In our study 6 patients showed complete response with no recurrence in followup period of 3 months and two patients died during the course of treatment

DISCUSSION

Nasopharyngeal carcinoma (NPC) is a rare cancer worldwide except in South East Asia, Southern China and North Africa. NPC is relatively uncommon in the Indian subcontinent in comparison to other head and neck cancer. In our study we have reported an alarming increase in incidence of NPC in upper Assam region. A total of 8 cases were diagnosed in a tertiary care centre in a period of only 6 months (January 2019-june 2019).

Beena Kunheri et al in their study reported that Age group of their patients was in the range of 12–73 years. Most patients were in the age group 51–60 years⁷.

In our study out of 8 patients , 2 (25%) were of age group 20-40yrs and 6(75%) were of age group 50-70yrs showing bimodal peak of occurrence mainly 2nd and 5th decades. Youngest being 21 years and oldest 70 yrs.

Singh I, Lyngdoh NC et al in their study mentioned that the main genetic risk is the admixed Mongoloid elements. In a study from Manipur state in India, 275 (83.3%) of the 330 were Mongoloids, and 55 were not obviously mongoloid⁸.

In our study out of 8 patients , all were of non-mongoloid origin suggesting a different etiological factor as they neither share the genetic makeup nor the food habits of eating smoked fish which are the two established etiological factors for NPC.

Jagannath Dev Sharma et al in their study mentioned that In Dibrugarh district , Urban Kamrup district , and Silchar town of Assam state, NPC does not find a place among the top ten cancers either for males or for females. In addition to Assam state, the data from the PBCRs of other Northeastern states indicate that NPC is rather uncommon among females in these states⁹.

Out of 8 cases 3 were from Dibrugarh, 3 cases from Lakhimpur , 1 from Dhemaji and 1 from Golaghat. All these districts are generally same as far as environment is concerned and all have a specific period of dry, hot and dusty weather during similar period of a year.

Communities having the same cultural practices have shown a rise in the incidence of the disease.

Sarkar S et al in their study mentioned that People from Nagaland and neighbouring hill states have the habit of eating smoked fish and meat. The houses were not well-ventilated. A possible correlation between the consumption of smoked meat by the tribal people and high susceptibility to NPC has been postulated¹⁰.

The populated and ill-ventilated households was an important observation during our study which was present in all the cases included in our study .Although none of the patient gave history of eating smoked fish or meat.

Vaughan TL et al in their study mentioned that In non- endemic areas however, keratinizing squamous cell carcinoma of the nasopharynx has been associated with cigarette smoking and heavy alcohol consumption¹¹.

In our study 6 out of 8 cases gave history of alcohol consumption and smoking.

Yuichi Kimura et al in their study mentioned that Tumor staging showed that 6% to belonged to stage I, 25% to stage II, 31% to stage III, and 38% to stage IV. A neck mass was present in 52% of the patients, ear symptoms in 48%, nasal symptoms in 27%, headaches in 10%, pharyngeal symptoms in 9%, ophthalmologic symptoms in 9%, and cranial neurological symptoms in 9%.¹²

Interestingly in our study 87.5% patients presented with epistaxis and nasal obstruction and 50% patients presented with neck node ,50% with speech defect, 37.5% with headache, cranial nerve involvement and snoring , 25% with deafness as mentioned in Table 2.

AJCC staging of patients is as follows –Stage I- 12.5% cases ,Stage II- 25% cases ,Stage III-25% and Stage IV- 37.5 % cases

Chan AT et al in their study found that concurrent cisplatin-radiotherapy (CRT) versus radiotherapy (RT) alone in patients with locoregionally advanced nasopharyngeal carcinoma. A total of 350 patients were randomly assigned to receive external RT alone or concurrently with cisplatin at a dosage of 40 mg/m² weekly. The primary endpoint was overall survival, and the median follow-up was 5.5 years. The 5-year overall survival was 58.6% (95% confidence interval [CI] = 50.9% to 66.2%) for the RT arm and 70.3% (95% CI = 63.4% to 77.3%) for the CRT arm¹³.

In our study all the cases were treated primarily radiation followed by chemotherapy .

Radiation in a dose of 66Gy -72Gy on weekdays for six weeks was given.

Cisplatin based chemotherapy in a dose of 100mg/m² IV in 1 hour and Docetaxel in a dose of 100mg/m² IV in 1 hour on day 1 followed by Cisplatin chemotherapy in a dose of 100mg/m² IV in 1 hour on day 2 was given.

6 patients showed complete response with no recurrence in followup period of 3 months and three patients presented with stage IV disease, out of which two expired during the course of treatment suggesting that delay in the start of treatment and advanced stage at the time of presentation are marker of poor prognosis.

CONCLUSION

Trend in incidence of nasopharyngeal cancer is on rise in Upper Assam region in particular which undoubtedly needs a large scale study to find the responsible etiological factors. Understanding Pattern and incidence of this cancer in this region is of utmost importance for primary prevention and early detection to adequately manage these cancers comprehensively in the community.

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